

REMARKS

By this amendment, claims 1 -10 and 14-17 have been amended. Claims 1-17 remain in the application. Support for the amendments can be found the specification and drawings. No new matter has been added. This application has been carefully considered in connection with the Examiner's Action. Reconsideration, and allowance of the application, as amended, is requested.

The Specification

The specification stands objected to as failing to provide proper antecedent basis for the claimed subject matter. Applicant respectfully traverses this rejection for at least the following reason. On page 14, lines 28-29 of the specification as originally filed, it is stated that "The invention can be implemented ... by means of a suitably programmed computer." In addition, the language "computer program product" can be found in the original specification at least on page 1, lines 9-12; page 5, lines 25-28; and page 6, lines 1-7. It is submitted that the limitations "computer-readable medium comprising instructions stored thereon for execution by a computer ... to carry out:" are inherent in the language "[t]he invention can be implemented ... by means of a suitably programmed computer" as is found in the specification on page 14, lines 28-29. Accordingly, withdrawal of the objection is requested.

Rejection under 35 U.S.C. §101

Claim 16 stands rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. By this amendment, claim 16 has been amended so as to clearly recite an image processing apparatus. Withdrawal of the rejection is respectfully requested.

Claim 17 stands rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. By this amendment, claim 17 has been

amended to recite "computer-readable medium comprising instructions stored thereon for execution by a computer" and thus is drawn to statutory subject matter. Withdrawal of the rejection is respectfully requested.

Rejection under 35 U.S.C. §112

Claim 16 stands rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Applicant respectfully traverses this rejection for at least the following reason. As described in the specification, beginning on page 5, line 28 through page 6, line 12, further in connection with Figure. 5, the image processing apparatus 500 is described as comprising one of a TV, a set top box, a satellite-tuner, a VCR player, or a DVD player or recorder. Accordingly, the receiving unit (or means) 502 having an input connector 510 (for receiving a video signal representing input images) corresponds to one of a TV receiving means, a set top box receiving means, a satellite-tuner receiving means, a VCR player receiving means, or a DVD player or recorder receiving means, all of which are known to one of skill in the art. Withdrawal of the rejection is respectfully requested.

Claim 4 stands rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. By this amendment, claim 4 has been amended to recite an "*absolute value of difference*" in the claim. Absolute value of difference is supported in the specification on page 9, in equations (2), (3) and (4). Withdrawal of the rejection is respectfully requested.

Claim 16 stands rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. By this amendment, claim 16 has been amended to

more clearly recite the elements of an image processing apparatus. Withdrawal of the rejection is respectfully requested.

Rejection under 35 U.S.C. §102

Claim 1 recites a method of generating a depth map comprising depth values representing distances to a viewer, for respective pixels of an image, the method comprising:

computing cost values that comprise respective measures of a number of and extent of transitions in luminance and/or color and/or color components for pixels of the image on a path related to a spatial disposition of objects in the image, wherein computing includes computing a cost value for a first one of the pixels of the image by combining differences between values of pairs of neighboring connected pixels at transitions which are disposed on a path from the first one of the pixels to a second one of the pixels, wherein the second one of the pixels belongs to a predetermined subset of the pixels of the image; and

assigning a first one of the depth values corresponding to the first one of the pixels on basis of the cost value.

Support for the amendments to claim 1 (as well as for claims 15-17) can be found in the specification at least on page 2, lines 17-25; page 6, line 33; page 7, line 1, 4-9, and 20-23.

Claims 1-4, 6, 8-10, 12, 13 and 15-17 were rejected under 35 U.S.C. §102(b) as being anticipated by Numagami et al., (Numagami, Y.; Kajiwara, Y.; Nakamura, O.; Minami, T.; Reconstruction of the 3-D shape of an object from a 2-D intensity image, Canadian Conference on Electrical and Computer Engineering, 1995. Volume: 2, 5-8 Sep 1995 Pages 1188-1191, "Numagami" hereinafter). Applicant respectfully traverses this rejection for at least the following reasons.

The PTO provides in MPEP § 2131 that
*"[t]o anticipate a claim, the reference must teach every
element of the claim...."*

Therefore, with respect to claim 1, as now presented, to sustain this rejection the **Numagami** reference must contain all of the claimed elements of the claim. However, contrary to the examiner's position that all elements are disclosed in the **Numagami** reference, the latter reference does not disclose "computing cost values that comprise respective measures of a number of and extent of transitions in luminance and/or color and/or color components for pixels of the image on a path related to a spatial disposition of objects in the image, wherein computing includes computing a cost value for a first one of the pixels of the image by combining differences between values of pairs of neighboring connected pixels at transitions ..." [*emphasis added*] as is claimed in claim 1. Therefore, the rejection is not supported by the **Numagami** reference and should be withdrawn.

In contrast, **Numagami** discloses isodensity lines ... that connect equal intensity levels and a method to determine a reconstruction path from a local direction of isodensity lines. (See Numagami, III, *Extraction of the isodensity lines*, paragraph 1 and *Relationship between local directions*, paragraph 1). However, **Numagami** does not disclose "computing cost values that comprise respective measures of a number of and extent of transitions in luminance and/or color and/or color components for pixels of the image on a path related to a spatial disposition of objects in the image, wherein computing includes computing a cost value for a first one of the pixels of the image by combining differences between values of pairs of neighboring connected pixels at transitions ..." [*emphasis added*] as is claimed in claim 1.

Accordingly, claim 1 is allowable and an early formal notice thereof is requested. Claims 2-4, 6, 8-10, 12 and 13 depend from and further limit independent claim 1 and therefore are allowable as well. The 35 U.S.C. §102(b) rejection thereof has now been overcome. Withdrawal of the rejection is respectfully requested.

Claims 15, 16 and 17 have each been amended in a manner similar to the amendments to claim 1. Accordingly, for similar reasons as stated with respect to overcoming the rejection of claim 1, claims 15, 16 and 17 are believed allowable and an early formal notice thereof is requested. The 35 U.S.C. § 102(b) rejection thereof has now been overcome. Withdrawal of the rejection is respectfully requested.

Rejection under 35 U.S.C. §103

Claims 5 and 7 were rejected under 35 U.S.C. §103(a) as being unpatentable over **Numagami** et al. as applied to claim 1, further in view of **Cahill** et al. (US Pub No 2004/0062439, hereinafter "**Cahill**"). Applicant respectfully traverses this rejection for at least the following reason. Claims 5 and 7 depend from and further limit independent claim 1 and therefore are allowable as well. The 35 U.S.C. §103(a) rejection thereof has now been overcome. Withdrawal of the rejection is requested.

Claim 11 was rejected under 35 U.S.C. §103(a) as being unpatentable over **Numagami**. Applicant respectfully traverses this rejection for at least the following reason. Claim 11 depends from and further limits allowable independent claim 1 and therefore is allowable as well. The 35 U.S.C. §103(a) rejection thereof has now been overcome. Withdrawal of the rejection is requested.

Claim 14 was rejected under 35 U.S.C. §103(a) as being unpatentable over **Numagami** as applied to claim 12, further in view of **Nakatsuna** et al. (US Pub No. 2002/0154116). Applicant respectfully traverses this rejection for at least the following reason. Claim 14 depends from and further limits allowable dependent claim 12, which is dependent from independent claim 1 and therefore is allowable as well. The 35 U.S.C. §103(a) rejection thereof has now been overcome. Withdrawal of the rejection is requested.

Conclusion

Except as indicated herein, the claims were not amended in order to address issues of patentability and Applicants respectfully reserve all rights they may have under the Doctrine of Equivalents. Applicants furthermore reserve their right to reintroduce subject matter deleted herein at a later time during the prosecution of this application or a continuation application.

It is clear from all of the foregoing that independent claims 1, 15, 16 and 17 are in condition for allowance. Claims 2-14 depend from and further limit independent claim 1 and therefore are allowable as well.

The amendments herein are fully supported by the original specification and drawings; therefore, no new matter is introduced. An early formal notice of allowance of claims 1-17 is requested.

Respectfully submitted,

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